

Application No. 10/785,533
Response to Office Action

Customer No. 01933

Amendments to the Specification:

Please amend the title as follows:

MOLDED LENS HAVING AN OUTER CIRCUMFERENCE AND FIRST
AND SECOND OPTICAL SURFACES WITH CUT OFF PERIPHERAL
PORTIONS, AND MOLDING DIE FOR THE MOLDED LENS

Please amend the paragraph at page 4, lines 6-11 as follows:

However, in the case of molded lens 300 whose outer circumference portion is cut out (see Figs. 4(b) and 4(c)) such as one described in ~~Patent Document 1~~ TOKKAI No. 2002-243915, a plurality of lenses 300 are held by causing the cut out portion to touch a part of left and right wall members 201 of the box-shaped cartridge.

Application No. 10/785,533
Response to Office Action

Customer No. 01933

Please amend the paragraph at page 6, lines 11-17 as follows:

Structure (2) is the molded lens described in Structure (1), wherein $R1 = R2$ and $1 < H/R1 < 2$ are satisfied when radiuses of curvature of the aforementioned two circular arc portions are prescribed respectively as $R1$ and $R2$, and a distance between ~~peripheral portions of the first~~ straight line portion and ~~the second optical surfaces each being in a form of a circle whose center is on an optical axis~~ straight line portion is prescribed as H .

Application No. 10/785,533
Response to Office Action

Customer No. 01933

Please amend the paragraph at page 6, line 18 to page 7,
line 5 as follows:

In the Structure (2), the same effect as in Structure (1) is obtained, and miniaturization of a molded lens can be attained sufficiently by making a ratio $(H/R1)$, ~~of length in~~ which H is the length of the portion which is made to be shorter by cutting off a part of a substantially circular molded lens having a radius $R1$ ~~($R2$)~~ whose center is on an optical axis to the radius $R1$, to be small. However, if the ratio is established to be too small, the molded lens becomes longer in the direction perpendicular to the optical axis, and there is a fear that melted resins cannot be filled completely in the cavity in the course of injection molding.

Application No. 10/785,533
Response to Office Action

Customer No. 01933

Please amend the paragraph at page 7, lines 6-17 as follows:

Structure (3) is a molded lens described in Structure (1), wherein $R1 = R2$, $1 < H1/R1 < 2$ and ~~$|H1 - H2| > 0.1$~~ $|H1 - H2| \geq 0.1$ are satisfied when radiuses of curvature of the aforementioned two circular arc portions are prescribed respectively as $R1$ and $R2$, a distance between peripheral portions of the first optical surface that is in a form of a circle whose center is on an optical axis and is cut off by the first straight portion and the second straight portion is prescribed as $H1$, and a distance between peripheral portions of the second optical surface that is in a form of a circle whose center is on an optical axis and is cut off by the first straight portion and the second straight portion is prescribed as $H2$.

Application No. 10/785,533
Response to Office Action

Customer No. 01933

Please amend the paragraph at page 7, line 18 to page 8,
line 5 as follows:

In the Structure (3), the same effect as in Structure (1) is obtained, and when a molding die (first molding die) for molding a portion of a molded lens including a plane of incidence and a molding die (second molding die) for molding a portion of the molded lens including a plane of emergence are united in the course of injection molding operations, it is possible to absorb a relative positional deviation caused between the above-mentioned two molding dies, and thereby to improve work efficiency of injection molding operations, by making $|H1 - H2| \geq 0.1$ to hold, namely, by making a difference between H1 and H2 to be ~~more than~~ 0.1 or more.

Application No. 10/785,533
Response to Office Action

Customer No. 01933

Please amend the paragraph at page 8, lines 6-15 as follows:

Further, miniaturization of a molded lens can be attained sufficiently by making a ratio $(H1/R1)$, ~~of length~~ in which H1 is the length of the portion which is made to be shorter by cutting off a part of a substantially circular molded lens having a radius $R1$ ~~(R2)~~ whose center is on an optical axis to the radius $R1$, to be small. However, if the ratio is established to be too small, the molded lens becomes longer in the direction perpendicular to the optical axis, and there is a fear that melted resins cannot be filled completely in the cavity in the course of injection molding.

Application No. 10/785,533
Response to Office Action

Customer No. 01933

Please amend the paragraph at page 9, lines 9-18 as follows:

In the Structure (4), miniaturization of a molded lens can be attained sufficiently by making a ratio $(H/R1)$ of length in which H is the length of the portion which is made to be shorter by cutting off a part of a substantially circular molded lens having a radius $R1$ ~~$(R2)$~~ whose center is on an optical axis to the radius $R1$, to be small. However, if the ratio is established to be too small, the molded lens becomes longer in the direction perpendicular to the optical axis, and there is a fear that melted resins cannot be filled completely in the cavity in the course of injection molding.

Please add the following heading at page 14, between lines 17 and 18:

DETAILED DESCRIPTION

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Please amend the paragraph at page 18, lines 3-14 as follows:

By making a ratio $(H1/R1)$, of length in which H1 is the length of the portion which is made to be shorter by cutting off a part of a substantially circular molded lens 10 having a radius $R1$ ($R2$) whose center is on optical axis L to the radius $R1$, to be smaller than 2, miniaturization of molded lens 10 can be attained sufficiently, and by making the ratio to be greater than 1, it is possible to prevent ~~that~~ the molded lens 10 ~~becomes longer~~ from becoming excessively long in the Z direction. If the ratio $H1/R1$ is established to be smaller than 1, there is a fear that the molded lens 10 becomes longer in the Z direction, and melted resins cannot be filled completely in the cavity in the course of injection molding.

Application No. 10/785,533
Response to Office Action

Customer No. 01933

Please amend the paragraph at page 18, line 15 to page 19,
line 2 as follows:

Further, by making $|H1 - H2| \geq 0.1$ to hold, namely, by making a difference between H1 and H2 to be ~~more than~~ 0.1 or more, when a molding die (first molding die) for molding a portion including plane of incidence 20 of molded lens 10 and a molding die (second molding die) for molding a portion including plane of emergence 30 of the molded lens 10 are united in the course of injection molding operations, it is possible to absorb a relative positional deviation caused between the above-mentioned two molding dies, and thereby to improve work efficiency of injection molding operations.